202401UECM3473OE3a

Start again

Review of preview

Started on	Tuesday, 12 March 2024, 11:23 AM
Completed on	Tuesday, 12 March 2024, 11:23 AM
Time taken	15 secs
Marks	0/8
Grade	**0** out of a maximum of 10 (**0**%)

1

Marks: 1

An automobile liability coverage is sold in three territories, A, B, and C. 49% of the business is sold in A, 28% in B, and 23% in C. Claim frequencies on this coverage are given in the following table:

	Number of Claims		
Territory	0	1	2
A	0.64	0.14	0.22
B	0.63	0.26	0.11
C	0.27	0.69	0.04

An insured selected at random had no claims in one period. Determine the probability of one claim from this insured in the next period. _____

Answer:

Make comment or override grade

Incorrect
Correct answer: 0.2402
Marks for this submission: 0/1.

2

Marks: 1

An automobile liability coverage is sold in three cities, J, K, and L. 46% of the business is sold in J, 20% in K, and 34% in L. Claim frequencies on this coverage are given in the following table:

	Number of Claims		
City	0	1	2
J	0.61	0.21	0.18
K	0.69	0.22	0.09
L	0.23	0.68	0.09

An insured selected at random had no claims in the first period and two claims in the second period. Determine the expected number of claims from this insured in the next period. _____

Answer:

Make comment or override grade

Incorrect
Correct answer: 0.5686
Marks for this submission: 0/1.

3

Marks: 1

You are given:

- The annual number of claims on a given policy has a poisson distribution with parameter λ.
- 26% of the policies have λ = 1.3, 41% of the policies have λ = 2.1, and the remaining 33% have λ = 3.4.

A randomly selected policy had 2 claims in Year 1. Calculate the Bayesian expected number of claims for the selected policy in Year2. _____

Answer:

Make comment or override grade

Incorrect
Correct answer: 2.24933
Marks for this submission: 0/1.

4 Marks: 1

Two eight-sided dice, A and B, are used to determine the number of claims for an insured. The faces of each die are marked with either 0 or 1, representing the number of claims for that insured for the year.

Die	P(claims = 0)	P(claims = 1)
A	1/8	7/8
B	4/8	4/8

Two spinners, X and Y, are used to determined claim cost. Spinner X has two areas marked 18 and c. Spinner Y has only one area marked 18.

Spinner	P(cost = 18)	P(cost = c)
X	1/2	1/2
Y	1	0

To determine the losses for the year, a die is randomly selected from A and B and rolled. If a claim occurs, a spinner is randomly selected from X and Y. For subsequent years, the same die and spinner are used to determine losses. Losses for the first year are 18. Based upon the results of the first year, you determine that the expected losses for the second year are 19.0. Calculate c. _____

Answer:

Make comment or override grade

Incorrect
Correct answer: 64.3539
Marks for this submission: 0/1.

5 Marks: 1

You are given the following information about six coins:

Coin	Probability of heads
1-4	0.62
5	0.33
6	0.05

A coin is selected at random and then flipped repeatedly. X_i denotes the outcome of the i^{th} flip, where '1' indicates heads and '0' indicates tail. The following sequence is obtained:

$$S = (X_1, X_2, X_3, X_4); = (0, 0, 1, 0)$$

Determine $E(X_5|S)$ using Bayesian analysis. _____

Answer:

Make comment or override grade

Incorrect
Correct answer: 0.428707
Marks for this submission: 0/1.

6 Marks: 1

Claim size follows a single-parameter Pareto distribution with parameters α = 5 and θ. Over all insureds, Θ has a uniform distribution on [1, 16]. An insured is selected at random submits 3 claims of sizes 5, 7, and 10. Determine the posterior mean. _____

Answer:

Make comment or override grade

Incorrect
Correct answer: 4.7059
Marks for this submission: 0/1.

7 Marks: 1

The conditional distribution of a frequency model X, given the risk parameter Θ is

$$P(X = 0|\Theta = \theta) = 2\theta,\ P(X = 1|\Theta = \theta) = 2\theta,\ P(X = 2|\Theta = \theta) = 1-4\theta$$

The parameter Θ is assumed to be uniformly distributed on the interval [0, 1/4]. Determine $P(X_2 = 0|X_1 = 0)$. _____

Answer:

Make comment or override grade

Incorrect
Correct answer: 0.333333

Marks for this submission: 0/1.

8
Marks: 1

Losses are uniformly distributed on [0, θ]. Θ varies by insured uniformly over [5, 16]. For a randomly selected insured, one observation of loss size is less that 10.5, Calculate the probability that the next observation of loss size from the same insured is less than 10.5. _____

Answer:

Make comment or override grade

Incorrect
Correct answer: 0.816095
Marks for this submission: 0/1.